BroadSoft Partner Configuration Guide

Mitel SIP Phones

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BroadWorks® Guide

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Document Revision History

Version	Reason for Change
1.1	Introduced document for Mitel SIP Phones that use SIP Release 6.0 firmware
2.0	Updated document for SIP Release 7.0 firmware and addition of 5330 and 5340 IP Phones.

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1 Overview

This document describes the configuration procedures required for the following Mitel SIP Phones to make full use of the capabilities of BroadWorks:

- Mitel 5212/5224 IP Phone
- Mitel 5215/5220 IP Phone
- Mitel 5235 IP Phone
- Mitel Navigator IP Phone
- Mitel 5330/5340 IP Phone

Mitel SIP Phones are one of the many access devices that interoperate with BroadWorks.

Mitel SIP Phones use the Session Initiation Protocol (SIP) to communicate with BroadWorks for call control. They also translate voice to audio packets for transmission across a packet network.

This guide describes the specific configuration items that are important for use with BroadWorks. It does not describe the purpose and use of all configuration items on Mitel SIP Phones. For those details, see the *SIP User and Administrator Guide* supplied by Mitel for each phone model.

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2 BroadWorks Validation Package Support Level

Devices are validated according to *BroadWorks Validation Packages*. Each package validates a subset of features or items. This section describes the device's support level for a *BroadWorks Validation Package* as well as the features or items in the package that are not supported. Packages not applicable to the device are marked "Not applicable" in the *Items Not Supported* column. For specific issues, see section *3.2 Interoperability Issues*. For a complete list of items validated per package, see *Appendix B: BroadWorks Validation Package Test Items*.

BroadWorks Package	Support Level	Items Not Supported
Basic Call	Full	
BroadWorks Enhanced Services	Full	
DUT Enhanced Services	Full	
Redundancy	Partial	Registration Failover Call Setup Failover Mid-Call Failover
Session Border Controller Interface	Full	
Enhanced Shared Call Appearance	Full	
TCP	Full	
Video	None	Not applicable

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3 Device Capabilities and Known Interoperability Issues

This section describes the features supported by the Mitel SIP Phones as well as BroadWorks interoperability issues and impact. The following table describes capabilities.

Verified Revisions shows the results of partner (vendor) testing of a specific BroadWorks version with a specific partner's device under test (DUT) version.

Compatible Revisions indicates the maintenance versions that should interface properly with BroadWorks.

3.1 Capabilities

Device Type	SIP Phone
Lines and Appearances	**5212**: 12 lines. One appearance per line. **5215**: 7 lines. One appearance per line. **5220**: 14 lines. One appearance per line. **5224** : 24 lines. One appearance per line. **5235**: 24 lines. One appearance per line. **Navigator**: 24 lines. One appearance per line. **5330**: 24 lines. One appearance per line. **5340**: 48 lines. One appearance per line. Note: A minimum of two lines are reserved as Prime Lines.
Speaker/Power/Bridge	Yes
Verified Revisions	BroadWorks Release 13.0 Mitel SIP Firmware Releases 6.0 and 7.0
Compatible Revisions	BroadWorks Release 12.0 and higher Mitel Any maintenance version of Release 6.0 or 7.0.
DNS Lookup Types Supported (A, SRV, NAPTR)	A, SRV, NAPTR
Redundancy Enabled	No
Outbound Proxy Configurable	Yes
Codecs	G.711 alaw/ulaw and G.729
RFC 2833 DTMF	Yes
T.38 Fax	No
Services	Administrative/User Privileges Advisory Message Alphanumeric Entry Attended Call Transfer Auto Answer Automatic Daylight Savings Adjustment Beep on Hold Busy Lamp Field BLF (Broadsoft Broadworks) Call Alternate Call Diversion Call Duration Timer Call Filtering/Call Reject Call Forking (Server)

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	Call Forwarding Call Hold Call Hold Ring Back (reminder) Call Logs (Received, Made, Missed) Call Progress Tone Call Reject to voicemail Call Waiting Call Waiting Indicator Caller ID Click to Call Conference Call, 3-way CSTA Call Control Dial by IP address Dial by Phone Number Dial by SIP URL Dial by SIP URL & parameter Dial from Calling Lists Dial from Programmable Key (Max Speed Dial) Dial Tone Dialing Plan (Automatic Route Selection) Distinctive Ring Do Not Disturb (DND) DTMF in-band mixing DTMF RTP Payload Early Media Stream Emergency Services E911 Hot Line Support (Automatic Ring-down) Incoming Call Indication Languages Last Number Redial LCD Brightness & Contrast Control Local Tone Plans Max Lines Message Waiting Indicator Message Waiting Stutter Tone Multiple Calls Multiple Users Mute/Mic On Hook Dialing Password Setting Personal Directory (PhoneBook) Q.23 DTMF Redundant DNS Redundant SIP Proxy Support (DNS SRV) Response Message Display Ring Pitch Control Ring Volume Control Shared Call Appearances (Broadsoft-Broadworks) SNMP Time & Date (SNTP or Manual) Touch Screen, disable for cleaning Transfer, on hook Unattended (Blind) Call Transfer Use Last 18x Message Received Voice Encryption Voice Mail Indicator (MWI) Volume Control
Shared Call Appearance	Yes
Enhanced IP Phone Configuration	Yes

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3.2 Interoperability Issues

This section lists the known interoperability issues between BroadWorks and partner release(s). For more information on issues related to the particular software release, see the partner release notes.

Issue Title and Description	Partner Releases			
All BroadWorks Releases	6.0	7.0		
No interoperability issues found.				

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4 Configuration

A Mitel SIP phone can be configured with a configuration file using the Trivial File Transfer Protocol (TFTP) or Hypertext Transfer Protocol (HTTP) or through its embedded web server. The following examples describe how to set the parameters using a configuration file. This configuration description assumes the Mitel SIP phones will use the Dynamic Host Configuration Protocol (DHCP) to obtain an IP address, TFTP server, and other network settings. Mitel SIP phones should be configured to load the configuration file each time they reset or re-synchronize. For detailed information on automated provisioning, see the *SIP User and Administrator Guide* for each phone.

The capabilities of Mitel SIP phones have been verified for use with BroadWorks based on the settings described in the following table. For more information on the meaning, purpose, and applicability of the individual configuration items, see the *SIP User and Administrator Guide* for each phone.

Configuration Files

Files Provided by Partner	Level	Description
SIP_Phones_07.00.00.08.zip	System	Contains the device firmware load for 5212, 5215, 5220, 5224, 5235, and Navigator SIP Phones.
SIP_5330_40_01.01.01.09.zip		Contains the device firmware load for 5330 and 5340 SIP Phones.
MN_Generic.cfg	System	Contains configurable parameters that apply to all devices in a given deployment.
MN_User.cfg	System or Subscriber	Contains configurable parameters that apply to an individual user in a deployment.
MN_XXXXXXXXXXXX.cfg (X's represent MAC address of specific phone)	Subscriber	Contains configurable parameters that apply to an individual device in a deployment.

Using the Web Configuration Tool

The Web Configuration Tool allows you to configure, personalize, and change settings for the SIP-supported Mitel phones.

Using a web browser, you can access the Web Configuration Tool from any computer connected to the Internet. Supporting web browsers include

- Netscape Navigator 4.8 or later.
- Internet Explorer 4 or later.
- Any equivalent browser.

You can also use the Web Configuration Tool to make calls.

To log in to the Web Configuration Tool follow the instructions in the *SIP User and Administrator Guide* for your phone.

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4.1 System Level Configuration

This section describes system-wide configuration items that are generally required for each Mitel SIP phone to work with BroadWorks. Subscriber-specific settings are described in the next section.

Configuration File

Step	Command	Purpose
System Configuration File MN_Generic.cfg		
Step 1	`Set SIP Proxy/Domain.` In the <user_list> parameter, set **ProxySvr** field (ProxySvr="as.broadworks.net")	Set the Mitel SIP phone's SIP server to the Fully Qualified Domain Name (FQDN) for the BroadWorks Application Server cluster. The domain must match the domain configured for the BroadWorks subscriber's line/port domain.
Step 2	`Set Outbound Proxy.` In the <user_list> parameter, set the **OutSvr** field (OutSvr="alg.broadworks.net")	Set the outbound proxy to the session border controller (SBC) if one is deployed between the Mitel SIP Phone and BroadWorks. If there are redundant SBCs, set it to the FQDN for the SBC cluster.

Web Configuration Tool

Step	Command	Purpose
Using the Web Configuration Tool:		
Step 1	`Set SIP Proxy/Domain.` 1. On the Web Configuration Tool home page, click **User List Config**. 2. In the **SIP Proxy server** field, enter **as.broadworks.net** 3. Proceed to Step 2.	Set the Mitel SIP phone's SIP server to the Fully Qualified Domain Name (FQDN) for the BroadWorks Application Server cluster. The domain must match the domain configured for the BroadWorks subscriber's line/port domain.
Step 2	`Set Outbound Proxy.` 1. Still on the User List Config page, in the **Outbound Server** field, enter **alg.broadworks.net**. 2. Click **Apply**.	Set the outbound proxy to the session border controller (SBC) if one is deployed between the Mitel SIP Phone and BroadWorks. If there are redundant SBCs, set it to the FQDN for the SBC cluster.

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4.2 Subscriber Level Configuration Parameters

This section identifies the device-specific parameters, including registration and authentication. These settings must be unique across devices in order to be matched with the settings for a BroadWorks subscriber.

Provisioning a subscriber to register with BroadWorks allows calls to terminate to the subscriber's line. Registration requires that a unique address of record (AoR) is provisioned on BroadWorks and the phone; provisioning an AoR on BroadWorks consists of setting the line/port parameter to a unique value within the Application Server cluster.

Configuration File

Step	Command	Purpose
Subscriber parameters for the MN_XXXXXXXXXXX.cfg		
Step 1	**Enable each line to be used.** In the <user_list> parameter, set the following fields: **ID**="<valid User ID>" (example: ID="1234") **DispName=**"<display name>" (example: DispName ="John" **Pwd**="<SIP authentication password>" (example: Pwd="welcome") **AuthName**="<enter SIP authentication user name> (example: AuthName="John")	Enable each Mitel SIP Phone in use.

Web Configuration Tool

Step	Command	Purpose
Subscriber parameters for the MN_XXXXXXXXXXX.cfg		
Step 1	**Enable each line to be used.** 1. On the Web Configuration Tool home page, click **User List Config**. 2. In the **User Name or Extension** field, enter the unique name or extension number assigned to this User. 3. In the **User Display Name** field, enter the name to display on the User's phone. 4. In the **SIP Authentication User Name** field, enter the User's SIP account from your SIP Service Provider. 5. In the **SIP Authentication Password**, enter the password supplied by your SIP Service Provider.	Enable each Mitel SIP Phone in use.

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4.3 Shared Call Appearance Configuration

The Shared Call Appearance (SCA) feature allows the administrator to add multiple locations to a given line. Any of the locations can be used to originate or receive calls.

When a call comes in to an idle line, all the provisioned locations for that line are alerted. The first location to answer the call is connected to the originator. If the line is already active in a call, only the active location is alerted.

A subscriber can originate calls from any of the configured locations. All other locations are unable to originate calls until all calls are released.

It is recommended that the phone number plus an index (<phoneNumber>_<index>) is used when provisioning the unique address of record (AoR) for each shared line. For example: 2405551111_2. If a phone number does not exist, the MAC address plus an index could be used (<macAddress>_<index>).

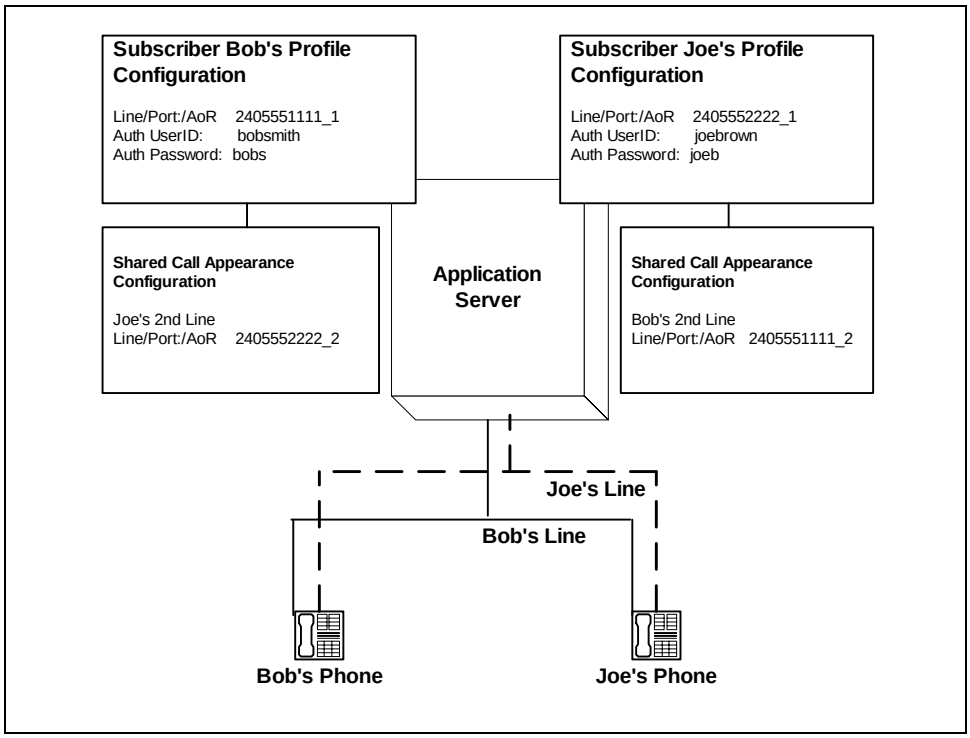

Figure 1 Shared Call Appearance Configuration

Figure 1 Shared Call Appearance Configuration shows that Bob and Joe each have two lines and that Bob shares a line with Joe and Joe shares a line with Bob. The figure also shows the applicable Subscriber Profile and Shared Call Appearance Configuration data for subscribers Bob and Joe.

When Bob (2405551111) is called, Bob's first line and Joe's second line will ring. When Joe (2405552222) is called, Joe's first line and Bob's second line will ring.

The following steps show how to configure both phones for this Shared Call Appearance configuration.

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4.3.1 Bob's Phone Configuration

The following steps are used to configure the primary line for Bob's phone. This line rings when Bob is called, so it has Bob's authentication information.

The following tables list instructions for using the configuration file (CFG). To set up Bob's phone using the Web Configuration Tool, see Sections 4.3.3 and 4.3.4.

Step	Command	Purpose
Step 1	**Configure line as shared.** a. Set the **<sip_mode>** parameter to enable SIP Enhanced Mode (<sip_mode>1</sip_mode>). b. In the <user_list> parameter, set the **Line** field for SIP-SCA (Line="2").	Configure the line as "shared" (as opposed to "private").
Step 2	**Set Register User ID and display name.** a. In the <user_list> parameter, set the **ID** field (ID="2405551111_1") b. Set the **DispName** field (DispName="Bob Smith")	The register user ID must correspond with the line/port setting on BroadWorks.
Step 3	**Enable SIP Authentication.** a. In the <user_list> parameter, set the **AuthName** field (AuthName="bobsmith). b. Set the **Pwd** field (Pwd="bobs")	If the Authentication service is configured on BroadWorks, these parameters must be configured to match the BroadWorks settings. This line rings when Bob is called, so it has Bob's authentication information.
Step 4	**Configure the Primary line on Bob's phone.** a. In the <pkDescription> parameter, select the key lines that contain field **Fea="6"** and **Fea="7"** b. Set the User ID field in these lines to Bob's ID: **User ID**="2405551111_1"	

The following steps are used to configure the shared line for Bob's phone. This line rings when Joe is called, so it has Joe's authentication information.

Step	Command	Purpose
Step 1	**Configure line as shared.** a. Set the **<sip_mode>** parameter to enable SIP Enhanced Mode <sip_mode>1</sip_mode>. b. In the <user_list> parameter, set the **Line** field for SIP-SCA (Line="2").	Configure the line as "shared" (as opposed to "private").
Step 2	**Set Register User ID.** a. In the <user_list> parameter, set the **ID** field (ID="2405551111_2") b. Set the **DispName** field (DispName="Joe Brown")	The register user ID must correspond with the line/port setting on BroadWorks.

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Step	Command	Purpose
Step 3	**Enable SIP Authentication.** a. In the <user_list> parameter, set the **AuthName** field (AuthName="joebrown"). b. Set the **Pwd** field (Pwd="joeb")	If the Authentication service is configured on BroadWorks, these parameters must be configured to match the BroadWorks settings. This line rings when Joe is called, so it has Joe's authentication information.
Step 4	**Configure the shared line on Bob's phone.** In the <pkDescription> parameter, select an unused key line and set the following line information: **Fea**="5" **Des**=" <enter desired line label - in this case, "Joe Brown">" **User ID**="2405551111_2" (Joe's shared ID)	

4.3.2 Joe's Phone Configuration

The following steps are used to configure the primary line for Joe's phone. This line rings when Joe is called, so it has Joe's authentication information.

Step	Command	Purpose
Step 1	**Configure line as shared.** a. Set the **<sip_mode>** parameter to enable SIP Enhanced Mode: (<sip_mode>1</sip_mode>). b. In the <user_list> parameter, set the **Line** field for SIP-SCA (Line="2").	Configure the line as "shared" (as opposed to "private").
Step 2	**Set Register User ID.** a. In the <user_list> parameter, set the **ID** field (ID="2405552222_1") b. Set the **DispName** field (DispName="Joe Brown")	The register user ID must correspond with the line/port setting on BroadWorks.
Step 3	**Enable SIP Authentication.** a. In the <user_list> parameter, set the **AuthName** field (AuthName="joebrown"). b. Set the **Pwd** field (Pwd="joeb")	If the Authentication service is configured on BroadWorks, these parameters must be configured to match the BroadWorks settings. This line rings when Joe is called, so it has Joe's authentication information.

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Step	Command	Purpose
Step 4	**Configure the Primary line on Joe's phone.** a. In the <pkDescription> parameter, select the key lines that contain field **Fea="6"** and **Fea="7"** b. Set the User ID field to Joe's ID: **User ID**="2405552222_1"	

The following steps are used to configure the shared line for Joe's phone. This line rings when Bob is called, so it has Bob's authentication information.

Step	Command	Purpose
Step 1	**Configure line as shared.** a. Set the **<sip_mode>** parameter to enable SIP Enhanced Mode (<sip_mode>1</sip_mode>). b. In the <user_list> parameter, set the **Line** field for SIP-SCA (Line="2").	Configure the line as "shared" (as opposed to "private").
Step 2	**Set Register User ID.** a. In the <user_list> parameter, set the **ID** field (ID="2405552222_2") b. Set the **DispName** field (DispName="Bob Smith")	The register user ID must correspond with the line/port setting on BroadWorks.
Step 3	**Enable SIP Authentication.** a. In the <user_list> parameter, set the **AuthName** field (AuthName="bobsmith). b. Set the **Pwd** field (Pwd="bobs")	If the Authentication service is configured on BroadWorks, these parameters must be configured to match the BroadWorks settings. This line rings when Bob is called, so it has Bob's authentication information.
Step 4	**Configure the shared line on Joe's phone.** In the <pkDescription> parameter, select an unused key line and set the following line information: **Fea**="5" **Des**=" <enter desired line label - in this case, "Bob Smith">" **User ID**="2405552222_2 (Bob's shared ID)	

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4.3.3 Bob's Phone Configuration (using the Web Configuration Tool)

The following steps are used to configure the primary line for Bob's phone. This line rings when Bob is called, so it has Bob's authentication information.

The following tables list instructions for using the Web Configuration Tool. To set up Bob's phone using the configuration file (CFG), see Sections 4.3.1 and 4.3.2.

Step	Command	Purpose
Step 1	**Configure line as shared.** a. On the Web Configuration Tool home page, click **Advanced Features**. b. In the **SIP Enhanced Mode** list, select **On**. c. Click **Save and Reboot**. d. On the Web Configuration Tool home page, click **User List Config**. e. Click **Add New**. f. In the **Line Type** list, select **SIP_SCA**. g. Proceed to Step 2 for further entries in this form.	Configure the line as "shared" (as opposed to "private").
Step 2	**Set Register User ID and display name.** a. Still in the Add New form of the User List Config, in the **User ID or Extension** field, enter Joe's ID [2405551111_1]. a. In the **User Display Name** field, enter the name to display on the phone. [Bob Smith]	The register user ID must correspond with the line/port setting on BroadWorks.
Step 3	**Enable SIP Authentication.** a. Still on the **User List Config** page, in the **SIP Authentication User Name** field, enter Bob's authentication information [bobsmith] b. In the **SIP Authentication Password** field, enter the password supplied by your SIP Service Provider ["bobs" in this example]. c. Click **Apply**.	If the Authentication service is configured on BroadWorks, these parameters must be configured to match the BroadWorks settings. This line rings when Bob is called, so it has Bob's authentication information.

The following steps are used to configure the shared line for Bob's phone. This line rings when Joe is called, so it has Joe's authentication information.

Step	Command	Purpose
Step 1	**Configure line as shared.** a. On the Web Configuration Tool home page, click **Advanced Features**. b. In the **SIP Enhanced Mode** list, select **On**. c. Click **Save and Reboot**. d. On the Web Configuration Tool home page, click **User List Config**. e. Click **Add New**. f. In the **Line Type** list, select **SIP_SCA**. g. Proceed to Step 2 for further entries in this form.	Configure the line as "shared" (as opposed to "private").

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Step	Command	Purpose
Step 2	**Set Register User ID.** a. Still in the Add New form of the User List Config, in the **User ID or Extension** field, enter Joe's shared ID [2405552222_2]. b. In the **User Display Name** field, enter the name to display on the phone. [Joe Brown]	The register user ID must correspond with the line/port setting on BroadWorks.
Step 3	**Enable SIP Authentication.** a. Still on the **User List Config** page, in the **SIP Authentication User Name** field, enter Bob's authentication information [joebrown] b. In the **SIP Authentication Password** field, enter the password supplied by your SIP Service Provider.	If the Authentication service is configured on BroadWorks, these parameters must be configured to match the BroadWorks settings. This line rings when Joe is called, so it has Joe's authentication information.
Step 4	**Assign Line Key to the Shared User** a. On the Web Configuration Tool home page, click **Key Programming**. b. Select an unused key and click the corresponding button. c. In the **Feature** list, select **Shared Line**. d. In the **Context** list, select **2405551111_2**. e. Click **Apply**.	

4.3.4 Joe's Phone Configuration (using the Web Configuration Tool)

The following steps are used to configure the primary line for Joe's phone. This line rings when Joe is called, so it has Joe's authentication information.

Step	Command	Purpose
Step 1	**Configure line as shared.** a. On the Web Configuration Tool home page, click **Advanced Features**. b. In the **SIP Enhanced Mode** list, select **On**. c. Click **Save and Reboot**. d. On the Web Configuration Tool home page, click **User List Config**. h. Click **Add New**. i. In the **Line Type** list, select **SIP_SCA**. e. Proceed to Step 2 for further entries in this form.	Configure the line as "shared" (as opposed to "private").
Step 2	**Set Register User ID.** a. Still in the Add New form of the User List Config, in the **User ID or Extension** field, enter Joe's ID [2405552222_1]. b. In the **User Display Name** field, enter the name to display on the phone. [Joe Brown]	The register user ID must correspond with the line/port setting on BroadWorks.

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Step	Command	Purpose
Step 3	**Enable SIP Authentication.** a. Still on the **User List Config** page, in the **SIP Authentication User Name** field, enter Joe's authentication information [joebrown] b. In the **SIP Authentication Password** field, enter the password supplied by your SIP Service Provider ["joeb" in this example]. c. Click **Apply**.	If the Authentication service is configured on BroadWorks, these parameters must be configured to match the BroadWorks settings. This line rings when Joe is called, so it has Joe's authentication information.

The following steps are used to configure the shared line for Joe's phone. This line rings when Bob is called, so it has Bob's authentication information.

Step	Command	Purpose
Step 1	**Configure line as shared.** a. On the Web Configuration Tool home page, click **Advanced Features**. b. In the **SIP Enhanced Mode** list, select **On**. c. Click **Save and Reboot**. d. On the Web Configuration Tool home page, click **User List Config**. e. Click **Add New**. f. In the **Line Type** list, select **SIP_SCA**. g. Proceed to Step 2 for further entries in this form.	Configure the line as "shared" (as opposed to "private").
Step 2	**Set Register User ID.** a. Still in the Add New form of the User List Config, in the **User ID or Extension** field, enter Bob's shared ID [2405551111_2]. b. In the **User Display Name** field, enter the name to display on the phone. [Bob Smith]	The register user ID must correspond with the line/port setting on BroadWorks.
Step 3	**Enable SIP Authentication.** a. Still on the **User List Config** page, in the **SIP Authentication User Name** field, enter Bob's authentication information [bobsmith]. b. In the **SIP Authentication Password** field, enter the password supplied by your SIP Service Provider. c. Click **Apply**.	If the Authentication service is configured on BroadWorks, these parameters must be configured to match the BroadWorks settings. This line rings when Bob is called, so it has Bob's authentication information.
Step 4	**Assign Line Key to the Shared User** a. On the Web Configuration Tool home page, click **Key Programming**. b. Select an unused key and click the corresponding button. c. In the **Feature** list, select **Shared Line**. d. In the **Context** list, select **2405552222_2**. e. Click **Apply**.	

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Figures 2 and 3 display the configuration files for Bob's and Joe's Mitel 5224 IP phones:

```
<pkDescription>
   <Key Line="25" Fea="6" Des="Line 1" Addr="" Mode="1" UserID="2405551111_1"></Key>
   <Key Line="26" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="27" Fea="7" Des="Line 2" Addr="" Mode="1" UserID="2405551111_1"></Key>
   <Key Line="28" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="29" Fea="8" Des="Line 3" Addr="" Mode="1" UserID="2405551111_1"></Key>
   <Key Line="30" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="31" Fea="9" Des="Line 4" Addr="" Mode="1" UserID="2405551111_1"></Key>
   <Key Line="32" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="33" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="34" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="35" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="36" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="37" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="38" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="39" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="40" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="41" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="42" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="43" Fea="4" Des="Headset on/off" Addr="" Mode="1" UserID=""></Key>
   <Key Line="44" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="45" Fea="3" Des="Advisory Message on/off" Addr="" Mode="1" UserID=""></Key>
   <Key Line="46" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="47" Fea="2" Des="Call logs" Addr="" Mode="1" UserID=""></Key>
   <Key Line="48" Fea="5" Des="Joe Brown" Addr="" Mode="1" UserID="2405551111_2"></Key>
</pkDescription>

<user_list>
   <User State="1" ID="2405551111_1" DispName="Bob Smith" Pwd="bobs" AuthName="bobsmith" Realm=""
     RegSvr="as.broadworks.net" RegPort="5060" RegScheme="2" ProxySvr="as.broadworks.net" ProxyPort="5060"
     ProxyScheme="2" VMSvr="" VMPort="5060" VMScheme="2" OutSvr="" OutPort="5060" OutCtr="0" Ring="1"
     Line="2" EventSvr="" EventPort="5060" EventScheme="2"></User>

   <User State="0" ID="2405551111_2" DispName="Joe Brown" Pwd="joeb" AuthName="joebrown" Realm=""
     RegSvr="as.broadworks.net" RegPort="5060" RegScheme="2" ProxySvr="as.broadworks.net" ProxyPort="5060"
     ProxyScheme="2" VMSvr="" VMPort="5060" VMScheme="2" OutSvr="" OutPort="5060" OutCtr="0" Ring="0"
     Line="2" EventSvr="" EventPort="5060" EventScheme="2"></User>

</user_list>
```

Figure 2. Bob's Configuration File

```
<pkDescription>
   <Key Line="25" Fea="6" Des="Line 1" Addr="" Mode="1" UserID="2405552222_1"></Key>
   <Key Line="26" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="27" Fea="7" Des="Line 2" Addr="" Mode="1" UserID="2405552222_1"></Key>
   <Key Line="28" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="29" Fea="8" Des="Line 3" Addr="" Mode="1" UserID="2405552222_1"></Key>
   <Key Line="30" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="31" Fea="9" Des="Line 4" Addr="" Mode="1" UserID="2405552222_1"></Key>
   <Key Line="32" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="33" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="34" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="35" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="36" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="37" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="38" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="39" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="40" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="41" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="42" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="43" Fea="4" Des="Headset on/off" Addr="" Mode="1" UserID=""></Key>
   <Key Line="44" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="45" Fea="3" Des="Advisory Message on/off" Addr="" Mode="1" UserID=""></Key>
   <Key Line="46" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
   <Key Line="47" Fea="2" Des="Call logs" Addr="" Mode="1" UserID=""></Key>
   <Key Line="48" Fea="5" Des="Bob Smith" Addr="" Mode="1" UserID="2405552222_2"></Key>
</pkDescription>

<user_list>
   <User State="1" ID="2405552222_1" DispName="Joe Brown" Pwd="joeb" AuthName="joebrown" Realm=""
     RegSvr="as.broadworks.net" RegPort="5060" RegScheme="2" ProxySvr="as.broadworks.net" ProxyPort="5060"
     ProxyScheme="2" VMSvr="" VMPort="5060" VMScheme="2" OutSvr="" OutPort="5060" OutCtr="0" Ring="1"
     Line="2" EventSvr="" EventPort="5060" EventScheme="2"></User>

   <User State="0" ID="2405552222_2" DispName="Bob Smith" Pwd="bobs" AuthName="bobsmith" Realm=""
     RegSvr=as.broadworks.net" RegPort="5060" RegScheme="2" ProxySvr="as.broadworks.net" ProxyPort="5060"
     ProxyScheme="2" VMSvr="" VMPort="5060" VMScheme="2" OutSvr="" OutPort="5060" OutCtr="0" Ring="0"
     Line="2" EventSvr="" EventPort="5060" EventScheme="2"></User>
</user_list>
```

Figure 3. Joe's Configuration File

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5 Enhanced IP Phone Configuration

Enhanced IP Phone Configuration is a BroadWorks feature that enables automatic generation of device configuration files, given administrator-supplied templates.

For more information on the Enhanced IP Phone Configuration feature, see the *Broadworks Enhanced Configuration Guide* in the Reference section on page 31.

For sample Mitel SIP phone system and group template files, see page 28. The group template file is used to build the configuration files for Mitel SIP phones assigned to the group.

To use this feature to upgrade the phone, the new binaries and Configuration files should be placed on the TFTP or HTTP server. By default, the phones have Configuration File Loading enabled, but the Firmware Upgrade setting must also be set to "Auto". (For more information refer to the online help supplied with the Web Configuration Tool.)

NOTE: BroadSoft does not manage or distribute template files for use with the Enhanced IP Phone Configuration feature. Obtain template files from Mitel or use the configuration files obtained from Mitel for the specific SIP phone firmware release to create template files appropriate for your installation.

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Appendix A: Sample Mitel SIP Phone Configuration Files

NOTE: The following samples are examples and should be used as a reference only. DO NOT CUT AND PASTE THESE EXAMPLES TO GENERATE YOUR CONFIGURATION FILES. Use the configuration files obtained from Mitel with the specific release to generate your configuration files.

System Default File: MN_Generic.cfg

NOTE: This is an example file and should be used for reference only.

```
<Parameter Model="5224">
   <dhcpenable>1</dhcpenable>
   <tftp_config>1</tftp_config>
   <tftp_task_enable>1</tftp_task_enable>
   <tftp_upgrade>1</tftp_upgrade>
   <tftp>134.199.30.50</tftp>
   <ipdns>134.199.30.49</ipdns>
 </Parameter>
```

Phone-Specific Files: MN_XXXXXXXXXXXX.cfg> MN_User.cfg

NOTE: This is an example file and should be used for reference only.

```
<Parameter Model="5224">
   <dhcpenable>1</dhcpenable>
   <tftp_config>1</tftp_config>
   <pppoe_enable>0</pppoe_enable>
   <tftp_task_enable>1</tftp_task_enable>
   <boot_version>02.01.00.03</boot_version>
   <image_version>KA.06.02.65</image_version>
   <tftp_upgrade>1</tftp_upgrade>
   <http_upgrade>1</http_upgrade>
   <outbound_state>0</outbound_state>
   <local_sip_port>5060</local_sip_port>
   <tos>0</tos>
   <e802_priority>-1</e802_priority>
   <vlan_id>-1</vlan_id>
   <host_name>MN08000F14B436</host_name>
   <domain>-example.com</domain>
   <addr_type>0</addr_type>
   <hot_line>0</hot_line>
   <hot_address>operator@example.com</hot_address>
   <hot_addr_type>0</hot_addr_type>
   <host_ip>135.199.77.12</host_ip>
   <video_ip>135.199.77.12</video_ip>
   <sntp>pool.ntp.org</sntp>
   <time_zone>-5</time_zone>
   <auth_method>2</auth_method>
   <register_expire>7200</register_expire>
   <emerg_number></emerg_number>
   <emerg_ip>0.0.0.0</emerg_ip>
   <emerg_port>5060</emerg_port>
   <audio_codec>5</audio_codec>
   <audio_pkt_size>20</audio_pkt_size>
   <video_codec>0</video_codec>
   <dtmf_type>0</dtmf_type>
   <dtmf_payload>101</dtmf_payload>
   <advisorymsg>0</advisorymsg>
   <reasons>0</reasons>
```


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```
<other_reason></other_reason>
<do_not_disturb>0</do_not_disturb>
<noans_fwd_mode>0</noans_fwd_mode>
<try_ring_nums>10</try_ring_nums>
<noans_fwd_addr></noans_fwd_addr>
<beep_on_hold>1</beep_on_hold>
<on_hold_alert>60</on_hold_alert>
<system_mode>0</system_mode>
<pppoe_login></pppoe_login>
<pppoe_passwd>******</pppoe_passwd>
<callCountIn>0</callCountIn>
<callCountOut>0</callCountOut>
<discovery>0</discovery>
<pbIndex>0</pbIndex>
<adminId>admin</adminId>
<admin_dispname>Administrator</admin_dispname>
<admin_passwd>923e325e16617477e457f6a468a2d6df</admin_passwd>
<busy_fwd_mode>0</busy_fwd_mode>
<busy_fwd_addr></busy_fwd_addr>
<always_fwd_mode>0</always_fwd_mode>
<always_fwd_addr></always_fwd_addr>
<pcport>0</pcport>
<lanport>0</lanport>
<lcd>14</lcd>
<lcd_brightness>9</lcd_brightness>
<rdkw1></rdkw1>
<rdringtype1>0</rdringtype1>
<rdvmail1>0</rdvmail1>
<rdblock1>0</rdblock1>
<rdkw2></rdkw2>
<rdringtype2>0</rdringtype2>
<rdvmail2>0</rdvmail2>
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<http_task_enable>1</http_task_enable>
<httpport>80</httpport>
<telnet_task_enable>1</telnet_task_enable>
<voicemail_ringnum>4</voicemail_ringnum>
<fwEnable>0</fwEnable>
<fwWanurl></fwWanurl>
<sym_udp>0</sym_udp>
<fwWanDurl>http://sipdnld.mitel.com/Remote.shtml</fwWanDurl>
<fwMode>0</fwMode>
<start_port>20000</start_port>
<end_port>20998</end_port>
<multi_user_enable>0</multi_user_enable>
<upgrade>0</upgrade>
<bksrvtm>3</bksrvtm>
```


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```
<ntfcfg>0</ntfcfg>
<lancode>en_CA</lancode>
<tonecode>CA</tonecode>
<dsmode>1</dsmode>
<dsmonth>4</dsmonth>
<dsweek>1</dsweek>
<dsday>1</dsday>
<dsemonth>10</dsemonth>
<dseweek>5</dseweek>
<dseday>1</dseday>
<flashVer>201</flashVer>
<http_download>sipdnld.mitel.com</http_download>
<tftp>10.39.55.100</tftp>
<downloadtype>0</downloadtype>
<dialpl></dialpl>
<gtEnable>0</gtEnable>
<dtimer>4</dtimer>
<autoanswer>0</autoanswer>
<ringPitch>0</ringPitch>
<keysys_enable>0</keysys_enable>
<pbName1></pbName1>
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<pbName26></pbName26>
```


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```
<pbaddr26></pbaddr26>
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<pbaddr59></pbaddr59>
<pbName60></pbName60>
<pbaddr60></pbaddr60>
<snmp>0</snmp>
<srtp>0</srtp>
```


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```
    <pkDescription>
       <Key Line="25" Fea="6" Des="Line 1" Addr="" Mode="1" UserID="4978"></Key>
       <Key Line="26" Fea="7" Des="Line 2" Addr="" Mode="1" UserID="4978"></Key>
       <Key Line="27" Fea="8" Des="Line 3" Addr="" Mode="1" UserID="4978"></Key>
       <Key Line="28" Fea="9" Des="Line 4" Addr="" Mode="1" UserID="4978"></Key>
       <Key Line="29" Fea="10" Des="Line 5" Addr="" Mode="1" UserID="4978"></Key>
       <Key Line="30" Fea="11" Des="Line 6" Addr="" Mode="1" UserID="4978"></Key>
       <Key Line="31" Fea="12" Des="Line 7" Addr="" Mode="1" UserID="4978"></Key>
       <Key Line="32" Fea="13" Des="Line 8" Addr="" Mode="1" UserID="4978"></Key>
       <Key Line="33" Fea="2" Des="Call logs" Addr="" Mode="1" UserID=""></Key>
       <Key Line="34" Fea="3" Des="Advisory Message on/off" Addr="" Mode="1"
         UserID=""></Key>
       <Key Line="35" Fea="4" Des="Headset" Addr="" Mode="1" UserID=""></Key>
       <Key Line="36" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="37" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="38" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="39" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="40" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="41" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="42" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="43" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="44" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="45" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="46" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="47" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
       <Key Line="48" Fea="0" Des="" Addr="" Mode="1" UserID=""></Key>
    </pkDescription>
    <webdialurl></webdialurl>
    <cw_tone>1</cw_tone>
    <time_format>1</time_format>
    <csta_enable>0</csta_enable>
    <csta_passwd>******</csta_passwd>
    <cfg_poll_timer>1440</cfg_poll_timer>
    <reboot_phone>1</reboot_phone>
    <firmware_timer>1440</firmware_timer>
    <firmware_abs_timer_hr>23</firmware_abs_timer_hr>
    <firmware_abs_timer_min>59</firmware_abs_timer_min>
    <firmware_abs_enable>1</firmware_abs_enable>
    <installer_passcode></installer_passcode>
    <user_passwd>5d41402abc4b2a76b9719d911017c592</user_passwd>
    <web_logo1>&lt;img src="http://sipdnld.mitel.com/mitel.gif" alt="Mitel"
      width="143" height="43" hspace="0" align="left" /&gt;</web_logo1>
    <sip_mode>1</sip_mode>
    <voicemail_key></voicemail_key>
    <facDef>90</facDef>
    <user_list>
      <User State="1" ID="1111" DispName="user1" Pwd="pwd"
     AuthName="user_1" Realm="" RegSvr="sip.mitel.com" RegPort="5060" RegScheme="2"
ProxySvr="sip.mitel.com" ProxyPort="5060" ProxyScheme="2" VMSvr="" VMPort="5060"
VMScheme="2" OutSvr="" OutPort="5060" OutCtr="0" Ring="1" Line="0" EventSvr=""
EventPort="5060" EventScheme="2"></User>
    </user_list>
    <ipadr>10.39.55.11</ipadr>
    <ipgateway>10.39.55.1</ipgateway>
    <ipmask>255.255.255.0</ipmask>
    <dhcpLease>691200</dhcpLease>
    <dhcpT1>345600</dhcpT1>
    <dhcpT2>604800</dhcpT2>
    <dhcpSrv>10.39.56.15</dhcpSrv>
    <ipdns>134.199.30.49</ipdns>
    <ipscddns>134.199.27.52</ipscddns>
    <answered_calls>******</answered_calls>
    <missed_calls>******</missed_calls>
    <made_calls>******</made_calls>
</Parameter>
```

Note: Data entries in the specific files override those in the generic file.

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Group Template File

NOTE: This is an example file and should be used for reference only.

```
<Parameter Model="%BWDEVICEID%">
   <image_version>%BWSOFTWARELOAD%</image_version>
   <sip_mode>1</sip_mode>
   <tftp>%BWFILESERVERLOCATION%/%BWFILESERVERDIR%</tftp>

   <user_list>
      <User State="1" ID="%BWDISPLAYNAMEDN%" DispName="%BWDISPLAYNAMECLID%"    Pwd="pwd"
        AuthName="username" Realm="" RegSvr="%BWSERVERADDRESS%"        RegPort="5060"
        RegScheme="2" ProxySvr="%BWSERVERADDRESS%" ProxyPort="5060"    ProxyScheme="2"
        VMSvr="<user_name@voicemail_server_addr" VMPort="5060" VMScheme="2"
        OutSvr="OutboundServer" OutPort="5060" OutCtr="0" Ring="1"     Line="0" EventSvr=""
        EventPort="5060" EventScheme="2"></User>

      <User State="1" ID="%BWDN-1%" DispName="%BWCLID%" Pwd="%BWAUTHPASSWORD-1%"
        AuthName="%BWAUTHUSER-1%" Realm="" RegSvr="%BWHOST-1%" RegPort="5060"  RegScheme="2"
        ProxySvr="%BWHOST-1%" ProxyPort="5060" ProxyScheme="2"
        VMSvr="<user_name@voicemail_server_addr" VMPort="5060" VMScheme="2"
        OutSvr="OutboundServer" OutPort="5060" OutCtr="0" Ring="1" Line="0"    EventSvr=""
        EventPort="5060" EventScheme="2"></User>
   </user_list>

   <pkDescription>
      <Key Line="25" Fea="6" Des="Line 1" Addr="" Mode="1"
        UserID="%BWDISPLAYNAMEDN%"></Key>
      <Key Line="26" Fea="7" Des="Line 2" Addr="" Mode="1"
        UserID="%BWDISPLAYNAMEDN%"></Key>
      <Key Line="48" Fea="%BWSHAREDLINE-1%" Des="SCA" Addr="%BWLINEPORT-1%@%BWHOST-    1%"
        Mode="0" UserID="%BWLINEPORT-1%"></Key>
   </pkDescription>

 </Parameter>
```


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Appendix B: BroadWorks Validation Package Test Items

The following table describes the items tested in each *BroadWorks Validation Package*.

BroadWorks Validation Package	Items Supported
Basic Call	Basic Call Call Failure Codes Session Audit Dial Plan Inband DTMF RFC 2833/Negotiation Codec Renegotiation
BroadWorks Enhanced Services	Basic CommPilot Functions Voice Messaging Audio MWI Voice Messaging Visual MWI Priority Alerting Priority Call Waiting Alternate Numbers Ring Splash Advanced Call Control - CommPilot Hold (SIP only) Advanced Call Control - CommPilot Talk (SIP only) Advanced Call Control - CommPilot Dial/AutoAnswer (SIP only) Blocked Calling Line ID Remote Restart Call Park Retrieve – Answer with Hold
DUT Enhanced Services	Call Waiting Call Hold Blind Transfer Attended Transfer Call Conference Authenticated Registration Authenticated Origination BroadWorks Shortened Registration Rejected Registration BroadWorks Authentication FAX Passthrough FAX T38 Busy Lamp Field Network Conference
Redundancy	DNS Registration Failover Call Setup Failover Mid-Call Failover

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BroadWorks Validation Package	Items Supported
Session Border Controller Interface	Registration Call Origination Call Termination
Enhanced Shared Call Appearance	Line Seize Line Lamp Management Line Hold/Retrieve Multiple Call Arrangement
TCP	Basic
Video	Integrated Video Phone Video Add-On

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